1014-O1-1041 **Clyde L. Greeno*** (greeno@mathsense.org), MALEI Mathematics Institute, P.O. Box 54845, Tulsa, OK 74154. *Developmental Continuity: A Key To Academic Success.*

In their (1999) book, Doignon and Falmagne detail their mathematical state-transition theory of "Knowledge Spaces", the mathematical basis for the ALEKS system of internet tutoring. Underlying that work is a far more general, topological theory of state-transition of the evolving mathematics learner. This research paper summarizes the latter, and then reveals how it can be applied to the design of mathematics-instructional courses. Herein, the ultra-detailed "mathematical outline" for any course in mathematics is called "the mathematics syllabus" for that course:an instructionally-prescribed progression of "mathematical points" for the learner to encounter. Such syllabi can be mathematically and empirically studied with regard for their "developmental continuity"—how well each "syllabus point" logically and psychologically derives from the preceding knowledge-states. Even most college textbook-embedded syllabi are badly wrought with developmental discontinuities — not only with regard for students' personal comprehension, but even with regard for mathematical integrity. Clinical R&D reveals a scientific truth: improving the mathematical continuity of a seriously troublesome course-syllabus routinely improves its mathematical comprehensibility to students. (Received September 27, 2005)